AUTHOR   : Zhitnikov, R.A.

TITLE   : Some Remarks concerning Methods of Analysis of Results
             in Experiments with Nuclear Paramagnetic Absorption
             (Nekotoryye zamechaniya o priya o priyemakh obrabotki
             rezul'tatov v eksperimentakh po yadernomu paramagnitnomu
             pogloshcheniyu)

PERIODICAL: Izvestiya Akademii Nauk, V.XX, # 11, 1215-1219,
             Nov 1956, (USSR), Seriya fizicheskaya

ABSTRACT   : The article deals with the use of nuclear paramagnetic
             radiofrequency resonance for isotopic analysis on the
             basis of a formula derived by Bloch (1). This formula
             determines the magnitude of nuclear paramagnetic resonance
             absorption under condition of slow transition through the
             resonance.

             The author points out that the magnitude of resonance
             absorption effect depends essentially on relaxation times,
Card 1/3   which vary in wide ranges depending on the type of

TITLE   : Some Remarks concerning Methods of Analysis of Results
            in Experiments with Nuclear Paramagnetic Absorption
            (Nekotoryye zamechaniya o priya o priyemakh obrabotki
            rezul'tatov v eksperimentakh po yadernomu paramagnitnomu
            pogloshcheniyu)

            chemical compound, its composition, structure, state,
            temperature, admixtures, etc. Therefore, it is desirable
            to exclude the times of relaxation from the results.

            The following way is suggested for this purpose. Experi-
            mental methods of investigating nuclear paramagnetic
            resonance absorption make it possible to obtain the re-
            sonance curve on the oscillograph screen (Ref 4,5) and
            determine the area S of this curve, its width at the
            half of its height and the value of maximum absorption
            effect. Then, certain quantities can be formed of these
            data, which are used in one of the four methods proposed
            by the author.

            Analyzing these methods, the author concludes that the
            most advantageous one is the fourth method, which con-
Card 2/3   sists in the following: all experimental data are

TITLE   : Some Remarks concerning Methods of Analysis of Results
               in Experiments with Nuclear Paramagnetic Absorption
               (Nekotoryye zamechaniya o priya o priyemakh obrabotki
               rezul'tatov v eksperimentakh po yadernomu paramagnitnomu
               pogloshcheniyu)

               measured twice, at some initial value of radiofrequency
               amplitude $2H_1$ and then at a value of frequency multiplied
               by a factor of p. Then formula 11 in the text determines
               a certain factor D_4, which does not contain relaxation
               times and which can be used to find the isotopic content
               and the value of nuclear spin.

               This method can be applied only in cases when the Bloch
               formula is applicable, that is, when the structure of
               lines is not affected by the quadrupole interaction and
               interaction of nuclear spins, and under the condition
               of slow transition through the resonance.
               There are 9 references, none of which is Slavic.

INSTITUTION : State Pedagogical Institute in Kazan'.
PRESENTED BY:
SUBMITTED   : No date.
AVAILABLE   : At the Library of Congress
Card 3/3

ZHITNIKOV, R.A.

Category : USSR/Solid State Physics - Mechanical Properties of   E-9
           Crystals and Polycrystalline Compounds

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6777

Author   : Zhitnikov, R.A., Stepanov, A.V.
Inst   : Leningrad Pedagogical Institute, USSR
Title   : Optical Method of Investigation of Averaged Stressed States
           in Fine Grain Polycrystals. I. Preparation of Fine-Grain
           Silver-Chloride Polycrystal Specimens.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 4, 772-778

Abstract : It is proposed that silver chloride be used as a material
           suitable for the solution of various problems in elasticity
           and plasticity of polycrystals by optical methods, for it
           has a considerable piezo-optical activity and its structure
           is similar to that of metals. Fine-grain specimens, neces-
           sary for the study of macroscopically averaged stressed
           states in polycrystalline media, were prepared by annealing
           for 1 -- 5 hours at 150°, bars (or rods), pressed with various
           degrees of deformation from high grade AgCl ingot. The re-
           crystallized bars with grain dimensions 0.1 -- 0.3 mm were
Card   : 1/2

Category : USSR/Solid State Physics – Mechanical Properties of   E-9
Crystals and Polycrystalline Compounds

Abs Jour : Ref Zhur – Fizika, No 3, 1957, No 6777

rolled into ribbons approximately 24 mm wide and approx-
imately w mm thick, while the rods (with grain dimensions
0.03 –– 0 1 mm) were pressed into strips with transverse
sections 10 x 2 mm. Both types of strips have a similar
structure and consist of grains that have a ribbon-like form
and are stretched in the rolling direction or in the pressing
direction. To obtain fine grain specimens without a re-
crystallization texture, the rods were upset between steel
plates into plane-parallel laminae approximately 2 mm thick,
which acquired after 12 hours' annealing at 100° a fine,
very uniform equilibrium grain measuring 0.05 –– 0.07 mm.

Card   : 2/2

ZHITNIKOV, R. A.

Category : USSR/Solid State Physics - Mechanical Properties of   Z-9
Crystals and Polycrystalline Compounds

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6778

Author   : Zhitnikov, R.A., Stepanov, A.V.
Inst   : Leningrad Pedagogical Institute, USSR
Title   : Optical Method of Investigation of Averaged Stressed States
in Fine Grain Polycrystals. II. Photoelastic Effects in
Crystals of the Cubic System in the Case of Plane Loading.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 4, 779-785

Abstract : On the basis of the Pockels theory and Krasnov's work on
piezo-optical phenomena in crystals, the authors examine the
photoelastic behavior of a plane-parallel plate, cut in an
arbitrary direction from a crystal of the cubic system and
placed in a plane loaded state. The resultant relationship
between the optical path differences of two plane-polarized
beams and the principal stresses makes it possible in many
particular cases to obtain purely-optical solutions to the
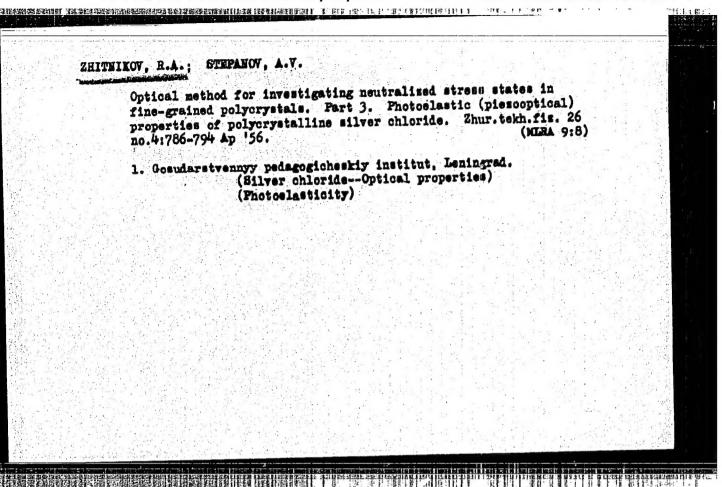problem of the plane-loaded state; namely: to find the

Card   : 1/2

Category : USSR/Solid State Physics - Mechanical Properties of   E-9
Crystals and Polycrystalline Compounds

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6778

distribution of the stresses along the symmetry plane of
elasto-anisotropic models cut from a cubic single crystal,
to study the stresses on the free outlines of such models,
etc. For the case of plates cut from a cubic crystal along
the (100) or (111) plane the problem of the plane stressed
state can be solved completely by optical methods. Inas-
much as the anisotropy of the properties of fine-grain tex-
tured materials is similar to the anisotropy of single-
crystal specimens of corresponding orientation, the de-
ductions of this work can be extended to include many prac-
tical important textures, such as rolled or pressed tex-
tures, etc.

Card   : 2/2

ZHITNIKOV, R.A.;   STEPANOV, A.V.

Optical method for investigating neutralized stress states in
fine-grained polycrystals. Part 3. Photoelastic (piezooptical)
properties of polycrystalline silver chloride.   Zhur.tekh.fiz. 26
no.4:786-794 Ap '56.
(MLRA 9:8)

1. Gosudarstvennyy pedagogicheskiy institut, Leningrad.
                (Silver chloride--Optical properties)
                (Photoelasticity)

SOV/57-28-9-21/33

AUTHOR: Zhitnikov, R. A.

TITLE: Optical Method of Investigating the Averaged Stressed States in Finely Grained Polycrystals (Opticheskiy metod issledovaniya usrednennykh napryazhennykh sostoyaniy v melkozernistykh polikristallakh) IV. The Effect of a Point Load Upon Anisotropic (Textured) Polycrystalline Platelets (IV. Deystviye sosredotochennoy sily na anizotropnyye (teksturirovannyye) polikristallicheskiye plastinki)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol 28, Nr 9, pp. 2004-2010 (USSR)

ABSTRACT: This is an investigation of the effect of a point load upon anisotropic polycrystalline silver chloride platelets. These platelets with a rolling and a pressing texture were subjected to point loads applied in different directions with respect to the axis of rolling or pressing: 1) The force acts upon a surface parallel to the axis of pressing. 2) The force acts upon a surface at an angle of 45° towards the pressing axis. The evidence presented shows that when a point load acts upon polycrystalline silver chloride platelets, the anisotropy of the elastic and of the piezo optical properties of these platelets exerts a considerable influence upon the stress

Card 1/4

Optical Method of Investigating the Averaged Stressed States in Finely
Grained Polycrystals. IV. The Effect of a Point Load Upon Anisotropic (Texturated)
Polycrystalline Platelets

distribution and upon the optical effects. The symmetry of
the isochromatic lines and of the stress distribution confirm
the assumption that the orientations parallel and vertical
to the axis of pressing constitue the axis of elastic symmetry.
This implies that the silver chloride platelets with a rol-
ling or pressing structure are either orthogonal isotropic
or orthotropic (Ref 6). There is reason to believe that the
radial and sector-shape nature of the isoclines substantiates
the assumption of a radial character of the stresses produced
in "texturated" polycrystalline silver chloride platelets by
the action of a point load. In those cases where the polari-
zation plane is near the axis of pressing the optical iso-
cline is wide, washed out, and covers the major part of the
sample. An investigation of the effects of a point load
upon polycrystalline silver chloride platelets with a pressing
and rolling structure shows, that when the stresses are con-
centrated the averaging process is allowed in such platelets
up to higher stresses than in the case of homogeneous dilata-
Card 2/4   tion. The pictures obtained by polarized light due to the

SOV/57-23-7-21/33

Optical Method of Investigating the Averaged Stressed States in Finely
Grained Polycrystals. IV. The Effect of a Point Load Upon Anisotropic(Textured)
Polycrystalline Platelet

residual stresses (Ref 7) remaining after great plastic de-
formations are characterized by the fact that the interference
colors reach their maximum intensity not immediately at the
point where the force is applied and where the maximum stresses
under load occur, but **in a place** below the loaded contour. An
investigation was also carried out of the effects of a point
load upon a hot-pressed platelet of pure silver bromide (with
a cross-section of 2 · 10 mm). The point load acted upon a
surface parallel to the pressing axis. It was found that in
silver bromide, as in silver chloride the rotation of the
isoclines proceeds in an opposite direction. (If the dis-
placed polaroids are made to rotate, the radial or the sec-
tor isoclinic line will remain in a radial direction and it
will rotate in a direction opposite to that of the polaroids.
Such an inverse rotation of the radial isoclinic line only
occurs if the parameters of the elastic and the optical iso-
clinic line show an opposite sign). It is assumed that silver
chloride and silver bromide have a rolling texture of a (100)+

Card 3/4

507/5?-2a-9-21/33

Optical Method of Investigating the Averaged Stressed States in Finely Grained Polycrystals. IV. The Effect of a Point Load Upon Anisotropic (Texturated) Polycrystalline Platelets

$+ \left[110\right]$ type and that the signs of the piezooptical constants $C_{11} - C_{12}$ and C_{44} are of an opposite sign. Professor A. V. Stepanov discussed the results of the work with the author. There are 4 figures and 8 references, 7 of which are Soviet.

ASSOCIATION: Kazanskiy gosudarstvennyy pedagogicheskiy institut (Kazan State Pedagogical Institute)

SUBMITTED: January 25, 1957

Card 4/4

SOV/57-28-9-22/33

AUTHOR: Zhitnikov, R. A.

TITLE: Optical Method of Investigating the Averaged Stressed States in Finely Grained Polycrystals (Opticheskiy metod issledo-vaniya usrednennykh napryazhennykh sostoyaniy v melkozernistykh polikristallakh) V. Stress at the Free Boundaries of Aniso-tropic ("Texturated") Polycrystalline Platelets (V. Napryazhe-niya na svobodnykh konturakh anizotropnykh (teksturirovannykh) polikristallicheskikh plastinok)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, /Vol 28, Nr 9, pp. 2011-2018 (USSR)

ABSTRACT: This is an investigation of the stress distribution at the free boundaries of plane anisotropic polycrystalline models of silver chloride with holes and grooves and of the stress concentration arising from a stretching of the samples. Poly-crystalline strips of silver chloride, 2 · 10 mm which were obtained by compressing finely grained cylinders (Ref 1) served as test material. 1) Stretching of an anisotropic polycrystalline platelet with a circular drill hole, a dis-tributed stress being applied at the hole circumference. The isochromatic curves were produced at the ends of the horizon-tal bore hole diameter under load, that is to say at the

Card 1/3

SOV/57-28-9-22/33

Optical Method of Investigating the Averaged Stressed States in Finely Grained Polycystals. V. Stress at the Free Boundaries of Anisotropic ("Texturated") Polycrystalline Platelets

places with the greatest stress concentration. The darkest places were found near the ends of the vertical hole diameter. The isochromatic curves produced in this material are similar to those originating in the stretching of bored platelets of an isotropic material (celluloid, bakelite etc.). The pheno-menon described in reference 4, the inverse rotation of the optical isoclinic line, was also found in the stretching of a platelet. When a load is applied after a plastic deformation the isochromatic curves do not start out from the places with the maximum stress concentration, but from places which are a good distance removed from these places. 2) Concentration of stress at a deep groove on both sides in the "texturated" polycrystalline platelet in stretching. As was found already in reference 4 the residual stress distributions in silver chloride and in amorphous substances (celluloid, bakelite) after an equal plastic deformation considerably differ from each other. This is due to the different mechanisms of plastic deformation and to the capability of silver chloride to solidity,

Card 2/3

SOV/77-2 3-9-22/33

Optical Method of Investigating the Averaged Stressed States in Finely
Grained Polycrystals. V. Stress at the Free Boundaries of Anisotropic
("Texturated") Polycrystalline Platelets

which is not found in amorphous substances. 3) Compression
in a diametral direction of a plane ring with a "texturated"
polycrystalline structure. The compressing point loads are
applied in the same direction with respect to the pressing
axis as was done in the work reported in reference 4 in the
case of massive (not drilled) pressed silver chloride plate-
lets. Under these conditions the isochromatic curves in both
cases are equal. Professor N. V. Stepanov made valuable
suggestions to the author. There are 4 figures, 1 table, and
9 references, 9 of which are Soviet.

ASSOCIATION: Kazanskiy gosudarstvennyy pedagogicheskiy institut
(Kazan State Pedagogical Institute)

Card 3/3

24(6)

AUTHORS: Zhitnikov, R.A., Stepanov, A.V.

TITLE: Comparison With Theory of the Experimental Results Obtained by
             Optical Methods of Stressed State Investigation of Polycrystals
             (Sravneniye s teoriyey eksperimental'nykh rezul'tatov, davayemykh
             optioheskim metodom issledovaniya napryazhennykh sostoyaniy v
             polikristallakh)

             SOV/57-28-10-19/40

PERIODICAL: Zhurnal tekhnicheskoy fiziki, Vol 28, Nr 10, pp 2228-2236 (USSR)

ABSTRACT: This paper presents the information gained by the methods of the
             theory of elasticity of an anisotropic body in the investigation
             of the stress distribution at the circumference of a hole in a
             polycrystalline silver chloride platelet under tension stress
             (the platelet being produced by pressing or rolling) (Ref 1).
             This paper gives also an account of the determination of the
             stressed state produced in such platelets under the action of a
             single load. The stress distribution determined by theoretical
             considerations are compared with experimental experience. The
             methods used in this work are reported in references 4 and 5. It
             appears that the experimental information is essentially not at
             variance with theoretical data. In most cases the insufficient
             accuracy of the experimental results offers a satisfactory ex-

Card 1/2

Comparison With Theory of the Experimental Results
Obtained by Optical Methods of Stressed State Investigation   SOV/57-28-10-19/40
of Polycrystals

planation for the divergencies between the two sets of values.
Nevertheless, in some cases considerable differences between ex-
perimental and theoretical results are found. This is the case,
for example, for the action of a single load oriented at an angle
of 45° to the pressing axis. These differences require further
investigation. Yu.M. Chernov carried out the measurements and
A.M. Bukhteyev assisted with the calculations. There are 4 figures,
4 tables, and 11 references, 11 of which are Soviet.

SUBMITTED: September 24, 1957

Card 2/2

24(6)
AUTHORS: Zhitnikov, R.A., Stepanov, A.V.   SOV/57-23-10-20/40

TITLE: Investigation of the Linear Stressed States in Polycrystalline
                Silver Chloride by Means of Optical Methods (Issledovaniye liney-
                nykh napryazhennykh sostoyaniy v polikristallicheskom khloristom
                serebre opticheskim metodom)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, Vol 28, Nr 10, pp 2237-2247 (USSR)

ABSTRACT: This is an investigation of the particular features of the piezo-
                electric behaviour of finely grained quasi-isotropic polycrystal-
                line silver chloride samples under uniform tension stress and
                under purely elastic and plastic bending stress. It was ascertain-
                ed that it is possible to determine the averaged stressed states
                by means of optical methods if such a crystal is subjected to
                elastic deformations not exceeding certain limits. This method
                renders visible the stresses caused by elastic and by elastic-
                plastic deformations, such investigations yielding correct results.
                The fact is substantiated that the quasi-isotropic polycrystalline
                silver chloride is a particularly convenient material for the stu-
                dy of the residual stresses remaining in polycrystals of such a
                structure after plastic deformations. The information gained
                in the investigation of the elastic-plastic bending of finely

Card 1/2

Investigation of the Linear Stressed States in Poly-   SOV/57-29-10-20/40
crystalline Silver Chloride by Means of Optical Methods

grained polycrystalline-texture platelets of silver chloride
indicates that such samples can be used for an exact investiga-
tion by optical methods of the stresses produced in such plate-
lets under elastic and under considerable plastic deformations.
It is also possible to determine accurately the residual stress
distribution after a plastic deformation. Mere bending results
in a simple linear stress for which the character of stress di-
stribution in isotropic and anisotropic platelets can be pre-
dicted for elastic and for elastic-plastic deformation. There
is no necessity of investigating the elastic and mechanical
properties of the quasi-isotropic or of the anisotropic material
for the purpose of predicting these states for mere bending. The
information presented in this paper bearing on the investigation
of mere bending of platelets of polycrystalline silver chloride
by means of optical methods and a comparison of this information
with calculated data validate the correctness of the values ob-
tained by optical methods for elastic and for plastic deformation
of polycrystalline silver chloride of different structure. There
Card 2/8   are 5 figures and 6 references, 6 of which are Soviet.
      2

8/051/60/008/03/001/038
E201/E191

AUTHORS: Bukat, G.M., Dolginov, A.Z., and Zhitnikov, R.A.

TITLE: On the Hyperfine Structure of Many-Electron Atoms

ABSTRACT: The hyperfine interaction, i.e. the interaction of
          magnetic and electric moments of atomic nuclei with
          electron shells, in atoms with several valence electrons
          was dealt with in a number of papers (Refs 3, 4). Racah
          (Refs 5, 6) and Trees (Ref 4) described calculation of
          the magnetic-dipole and electric-quadrupole interactions
          of nuclei with electron shells, containing s-, p- and
          d-electrons, in the central field and LS-coupling
          approximation.   Such a treatment is insufficient in the
          case of rare-earth atoms, whose partly filled shells
          contain several equivalent electrons with an orbital
          quantum number $\ell = 3$.   The present paper describes a
          calculation of the electron matrix elements which appear
          in the hyperfine structure constants of atoms with
Card   several equivalent electrons in a partly filled shell.
1/2   The authors discuss LS- and jj-couplings. "Genealogical"

S/051/60/008/03/001/038
E201/E191

On the Hyperfine Structure of Many-Electron Atoms

coefficients of terms with maximal multiple-order and with f^m configurations are given in a form convenient in calculations. It is shown that using the sum rule the problem can be solved in some cases without calculation of the "genealogical" coefficients. The paper is entirely theoretical.

Card 2/2

There are 6 tables and 16 references, of which 2 are Soviet, 9 English, 1 German, 2 Japanese and 2 translations from English into Russian.

SUBMITTED: June 18, 1959

82432
S/056/60/038/03/33/033
B006/B014

24.6520

AUTHORS: Drabkin, G. M., Zhitnikov, R. A.

TITLE: Production of "Supracold" Polarized Neutrons   19

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
          Vol. 38, No. 3, pp. 1013-1014

TEXT: "Supracold" neutrons have energies of 10^{-4} to 10^{-6} $^{\circ}$K. At a
moderator temperature of 1°K the yield of neutrons having energies of
$\sim 10^{-5}$ $^{\circ}$K amounts to 10^{-11} of the total flux. In order to raise the yield
of "supracold" particles, the authors suggest a new slowing-down method,
which uses the interaction between the magnetic moment of the neutron and
an inhomogeneous magnetic field. It is shown that a change in energy $\Delta\varepsilon$
of the neutron depends on a change in the sign of the projection μ_{eff} of

the magnetic moment of the neutron onto H. $\Delta\varepsilon = \int_{0}^{s} \mu_{eff} \frac{\partial H}{\partial s}\, ds.$ s denotes

Card 1/2

Production of "Supracold" Polarized Neutrons   S/056/60/038/03/33/033
B006/B014

82432

the path length covered by the neutron in the field. The change in sign of μ_{eff} means that the neutron is bound to undergo a spin reorientation when passing through the maximum H-value. This may be brought about by a homogeneous H-field. When the maximum field value H_0 is attained (when $\Delta\varepsilon = \mu_{eff}H_0$), the change in velocity is equal to $\Delta v_1 \approx \mu_{eff}H_0/mv_0$ (m - mass, v_0 - initial velocity of the neutron). If a radio-frequency field H_1 having the frequency $\omega = \gamma H_0$ is perpendicularly superimposed upon the H_0-field, then the total loss of the neutron velocity equals $2\Delta v_1$ if $H_1\Delta t = \hbar/g\mu_N$ (Δt - time of flight of the neutron in the H_1 field, g - gyromagnetic ratio, μ_N - nuclear magneton). This is due to the fact that the neutron is slowed down both when it enters and departs from the constant field. If H_0 = 20000 gauss, v_0 = $2 \cdot 10^3$ cm/sec, then $2\Delta v_1 =$ = 100 cm/sec. This effect may be increased, if the neutron travels successively through several regions.

Leningrad Inst. Physics and Technology, AS USSR

Card 2/2 2

ZHITNIKOV, R.A. (Leningrad)

Continuously operating optical ruby generator. Priroda 51
no.10:99-100 O '62.   (MIRA 15:10)
        (Oscillators, Crystal)

41128
S/056/62/043/004/011/061
B102/B180

24.7900

AUTHORS: Zhitnikov, R. A., Kolesnikov, N. V., Kosyakov, V. I.

TITLE: Paramagnetic resonance in free silver atoms trapped in non-
           polar media at 77°K

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
           no. 4(10), 1962, 1186 - 1196

TEXT: The method of paramagnetic resonance has hitherto been used only for
trapped hydrogen or nitrogen atoms. The measurements were made with a 3-cm
band radiospectroscope with rf modulation (975 kc) of the permanent magnetic
field, a cylindrical H_{011} resonator and an automatic recording device. The
specimens were prepared in the radiospectroscope cavity by vacuum evapora-
tion of the silver from a molybdenum coil and a paraffin from a glass
heater with condensation on the bottom of a 77°K quartz Dewar flask. The
$Ag^{107}:Ag^{109}$ ratio was 51.9:48.1. The experimental results are given in
Table 1. H_1 and H_2 are the magnetic field strengths for the first and sec-

Card 1/3

Paramagnetic resonance ...

ond transition. These values were used to calculate $\Delta\nu$ and the Landé factor g_J by

$$\nu = -\Delta\nu\left\{\frac{1}{2}(1+x_1^2)^{1/2} + \frac{1}{2}(1-x_1) - \frac{g_I\beta H_1}{h\Delta\nu}\right\},$$

$$\nu = -\Delta\nu\left\{\frac{1}{2}(1+x_2^2)^{1/2} - \frac{1}{2}(1+x_2) - \frac{g_I\beta H_2}{h\Delta\nu}\right\}; \qquad (3).$$

$$x_1 = (g_J - g_I)\beta H_1/h\Delta\nu, \qquad x_2 = (g_J - g_I)\beta H_2/h\Delta\nu;$$

$x = (g_J - g_I)\beta H/\Delta W$ is a dimensionless quantity proportional to the magnetic field, $g_I = -\mu_I/\beta I$, the nuclear gyromagnetic ratio, A is the hyperfine interaction constant, μ_I the nuclear magnetic moment, and $\Delta W = \frac{1}{2}(2I+1)A$, the hyperfine splitting of the atomic ground state energy level for H=0, β is Bohr's magneton. As there is little difference between the $\Delta\nu$ and g_J values for trapped and free silver atoms, the trapped atoms can be treated as free ones with slightly perturbed electron shells. The die material has little effect on the spectrum. The two different types of spectra of the trapped silver atoms show that at 77°K they are in two different places in the paraffin structure. At room temperature they withdraw and the paramagnetic resonance vanishes completely and irreversibly. There are 4 figures and 2 tables.

Card 2/3

Paramagnetic resonance ...

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physicotechnical Institute of the Academy of Sciences USSR)

SUBMITTED: May 9, 1962

Legend to the tables: (1) Die material; (2) commercial parraffin; (3) free; (4) type of spectrum (A, B); (5) mc/sec.

Table 1.

Атом	Матрица ①	Тип спект-ра ③	ν, мгц ④	H_1, Oe	H_2, Oe	$\Delta H = H_2 - H_1$ Oe
Ag^{107}	Техниче-④ский парафин	A	9600,0±0,5	3088,9±0,3	3710,3±0,3	623,4±0,6
Ag^{109}	То же	A	9600,0±0,5	3028,5±0,3	3750,1±0,3	721,6±0,6
Ag^{107}	» »	Б	9600,0±0,5	3107,2±0,7	3694,6±0,6	587,4±1,3
Ag^{109}	» »	Б	9600,0±0,5	3051,2±1,2	3732,0±0,7	680,8±1,9
Ag^{107}	$C_{20}H_{42}$	A	9503,0±0,5	3052,1±0,3	3675,8±0,6	623,7±0,9
Ag^{109}	$C_{20}H_{42}$	A	9503,9±0,5	2993,8±0,3	3715,7±0,3	721,9±0,6
Ag^{107}	$C_{17}H_{36}$	A	9509,6±0,5	3087,6±0,3	3712,8±0,5	625,2±0,8
Ag^{109}	$C_{17}H_{36}$	A	9509,6±0,5	3028,7±0,5	3752,6±0,5	723,0±1,0

Card 3/A 3

S/056/63/044/004/016/044
B102/B166

AUTHORS: Zhitnikov, R. A., Kolesnikov, N. V., Kosyakov, V. I.

TITLE: Paramagnetic resonance of silver atoms trapped in polar media at 77°K

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 4, 1963, 1204 - 1210

TEXT: Previous investigations (ZhETF, 43, 1186, 1962) on the paramagnetic resonance of silver atoms trapped in non-polar media were continued; the method of measurement was the same. The difference consisted in the media used: first nonpolar media (solid at room temperature) were used, and then polar ones (liquid at room temperature): distilled water and absolute ethyl alcohol. The measurements were made with a radiospectroscope (3-cm band) with h-f modulation of the magnetic field. The constant magnetic field was measured with an accuracy of 10^{-4} by the nuclear magnetic resonance method.

For each of the silver isotopes (Ag^{107}, Ag^{109}, $I = 1/2$) there are four Zeeman fine structure levels between which two resonance levels are possible in strong fields: $(F=1, m=1) \rightarrow (F=0, m=0)$ and $(F=1, m=0) \rightarrow (F=1, m=1)$. For both

Card 1/2

Paramagnetic resonance of silver...

isotopes $\Delta\nu$ and g_J (Landé factor) were measured in several series. $\Delta\nu = \Delta W/h$, ΔW being the energy of hyperfine splitting of the ground state ($^2S_{1/2}$) at H=0. The results (Table) proved very sensitive to the purity of the matrix substance. There are 2 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

SUBMITTED: December 1, 1962

Atom	matrix	$\Delta\nu$, Mcy Mc	$\delta(\Delta\nu)/\Delta\nu$, %	g_J
Ag^{107}	free atom	1712,50±0,04		2,00224±0,00020
Ag^{109}	free atom	1976,94±0,04		2,00224±0,00020
Ag^{107}	H_2O	1736,9 ±3,1	+1,42	2,0021 ±0,0005
Ag^{109}	H_2O	2004,7 ±2,9	+1,40	2,0030 ±0,0006
Ag^{107}	C_2H_5OH	1500,3 ±2,4	−12,39	2,0015 ±0,0008
Ag^{109}	C_2H_5OH	1733,0 ±2,3	−12,36	2,0013 ±0,0009

Card 2/2

ACCESSION NR: AP4041050   S/0120/64/000/003/0189/0192

AUTHOR: Zhitnikov, R. A.; Kolesnikov, N. V.

TITLE: Methods for capturing free atoms by various media at the liquid-nitrogen temperature in paramagnetic-resonance studies

SOURCE: Pribory* i tekhnika eksperimenta, no. 3, 1964, 189-192

TOPIC TAGS: paramagnetic resonance, atom capture, radiospectroscope, atom capture by condensation

ABSTRACT: The capture and stabilization of free Ag atoms in both nonpolar (paraffins) and polar (water and ethyl alcohol) matrices, at the liquid-nitrogen temperature, were studied. Also, the paramagnetic-resonance spectra of these captured atoms were investigated. The condensation method was used for the capture, and the specimens were produced directly in the resonator of a radio-spectroscope. Two outfits (sketches supplied) are described: with heating and

Card 1/2

ACCESSION NR: AP4041050

with cooling the capture medium, depending on the vapor pressure of the medium at room temperature. For low vapor-pressure substances, the best results were obtained with thin (0.1—0.3-mm) specimens condensed within 2—3 minutes. Orig. art. has: 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-Technical Institute, AN SSSR)

SUBMITTED: 17Dec62   ENCL: 00

SUB CODE: NP   NO REF SOV: 002   OTHER: 004

Card 2/2

L 2293-66   EWT(m)/EWP(t)/EWP(b)   IJP(c)   JD/JG

ACCESSION NR: AP5014570   UR/0181/65/007/006/1710/1716

AUTHOR: Zhitnikov, R. A.; Kolesnikov, N. V.

TITLE: Hyperfine structure of paramagnetic resonance spectra of free atoms of Ag, Au, and Cu stabilized in a benzene matrix at liquid-nitrogen temperatures

SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1710-1716

TOPIC TAGS: silver, gold, copper, hyperfine structure, line splitting, epr spectrometry

ABSTRACT: This is a continuation of earlier work by the authors (FTT v. 6, 3307, 1964 and preceding papers) and is devoted to the stabilization of the atoms of Ag, Au, and Cu in benzene and to an investigation of their paramagnetic-resonance spectra, as well as to an application of the theory of F. J. Adrien (J. Chem. Phys. v. 82, 782, 1960) and of O. K. Jen et al. (Phys. Rev. v. 126, 1749, 1962) to these substances. The samples were produced by a condensation method using apparatus and a procedure described earlier (PTE no. 5,

Card   1/2

L 2293-66

ACCESSION NR: AP5014570

189, 1964). The observation and recording of the paramagnetic resonance spectra were likewise carried out by a previously described procedure, using an X-band spectrograph (RE13-01). The hyperfine structure splitting and the g factors were calculated with the aid of the Breit-Rabi formula, in accordance with the earlier procedure. The results indicate the possibility of stabilizing the Ag, Au, and Cu atoms in a benzene matrix at temperatures much higher than that of liquid nitrogen. Gold remains stable at temperatures above 100K, while part of the silver atoms remain stable up to 180K. In the case of silver and copper, the benzene matrix contains two capture places. The matrix displacements turn out to be negative and quite large in magnitude, -7 to -12% for Ag and Au, and -25 to -29% for Cu. These displacements are in good agreement with the theoretical changes in the splitting of the hyperfine structure of stabilized atoms. Orig. art. has: 3 figures, 8 formulas, and 2 tables.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical institute, AN SSSR)

SUBMITTED: 21Dec64   ENCL: 00   SUB CODE: SS, NP

NR REF SOV: 006   OTHER: 006

Card 2/2 DP

L 22528-66   EWT(1)/T   IJP(c)   SOURCE CODE: UR/0020/66/166/006/1326/1327

ACC NR: AP6009419

AUTHORS: Zhitnikov, R. A.; Mel'nikov, N. I.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of
Sciences,SSSR (Fiziko-tekhnicheskiy Institut Akademii nauk SSSR)

TITLE: Optical absorption spectra of silver atoms stabilized in
different matrices at 77K

SOURCE: AN SSSR. Doklady, v. 166, no. 6, 1966, 1326-1327

TOPIC TAGS: silver, light absorption, absorption spectrum, aqueous
solution, optic transition, line splitting, electron capture

ABSTRACT: The authors report the first results of an investigation
of the optical absorption of stabilized silver atoms, which were ob-
tained earlier (Fiz. tverd. tela v. 7, no. 7, 1965) by x-ray irradia-
tion of frozen alcohol and water solutions of silver salts. The
alcohol solutions were frozen by immersing a quartz test tube with
solution directly in the liquid nitrogen, while the aqueous solutions
were obtained by first freezing in a household refrigerator and then

UDC: 535.349

Card   1/2

drop the frozen samples in liquid nitrogen. Both the irradiation
and spectral measurements were made at 77K. The spectra disclose two
lines connected with the transitions $^2S_{1/2}$ $^2P_{1/2}$ and $^2S_{1/2}$ $^2P_{3/2}$
in the free neutral atoms of silver. The spectra obtained with dif-
ferent matrices exhibit great similarity, but still disclose certain
differences connected with the differences between the matrices. The
wavelengths and the half-widths of the different spectral lines are
listed in a table. Stabilization produces several doublets and trip-
lets in individual spectra. The presence of the doublets and triplets
is probably connected with the stabilization of the silver atoms in
several different capture places present in a single matrix. The
presence of such different types of capture places was already estab-
lished in the earlier investigation. Certain theoretical explanations
for the line splitting are proposed, but quantitative deductions must
await further data obtained with the aid of paramagnetic resonance.
This report was presented by Academician B. P. Konstantinov. Orig.
art. has: 1 figure and 1 table.

SUB CODE: 20/   SUBM DATE: 21Jun65/ ORIG REF: 001/ OTH REF: 004

Card   2/2 BLC

ACC NR: AP6018542   SOURCE CODE: UR/0181/66/008/006/1796/1806

AUTHOR: Zhitnikov, R. A.; Paugurt, A. P.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR (Fiziko-tekhnicheskiy institut AN SSSR); Leningrad Polytechnic Institute im. M. I. Kalinin (Leningradskiy politekhnicheskiy institut)
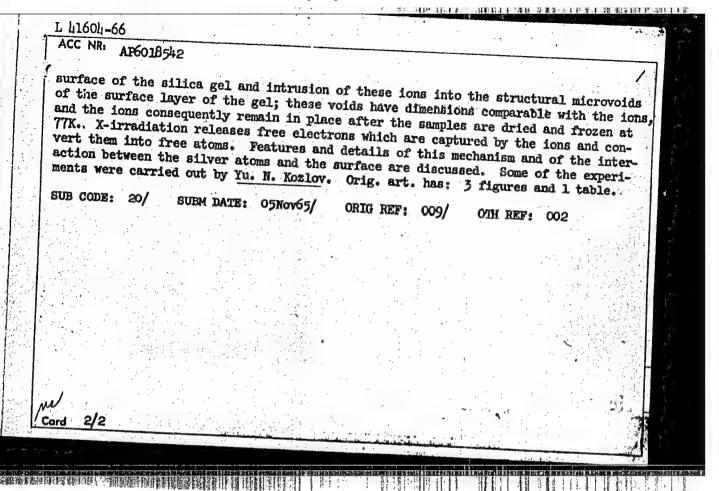
TITLE: Paramagnetic resonance of free silver atoms stabilized on solid surfaces

SOURCE: Fizika tverdogo tela, v. 8, no. 6, 1966, 1796-1806

TOPIC TAGS: silver, free electron, x ray irradiation, silica gel, atomic property, adsorption, surface property, epr spectrum, hyperfine structure

ABSTRACT: This is a continuation of earlier work (FTT v. 7, 1926, 1965) on the production and stabilization of free silver atoms by x-irradiation of frozen silver-salt solutions at 77K. In the present study the authors obtained similar atoms by x-irradiation at 77K of silica gels with silver ions adsorbed on their surfaces, and stabilized these atoms on the surfaces. The test procedure and the types of silica gels are briefly described. The properties of the atoms were investigated by paramagnetic resonance using a standard 30-cm radio spectroscope (RE-1301). The stabilization of the silver atoms was evidenced by the fact that the shifts of their hyperfine splitting (+0.6 to +1.8%) differed greatly from the shifts observed in frozen aqueous and alcohol solutions (-12 to -24%). It is proposed that the atoms are stabilized as a result of adsorption of part of the silver ions from the solution on the

Card   1/2

L 41604-66

ACC NR: AP6018542

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surface of the silica gel and intrusion of these ions into the structural microvoids of the surface layer of the gel; these voids have dimensions comparable with the ions, and the ions consequently remain in place after the samples are dried and frozen at 77K.. X-irradiation releases free electrons which are captured by the ions and convert them into free atoms. Features and details of this mechanism and of the interaction between the silver atoms and the surface are discussed. Some of the experiments were carried out by Yu. N. Kozlov. Orig. art. has: 3 figures and 1 table.

SUB CODE: 20/   SUBM DATE: 05Nov65/   ORIG REF: 009/   OTH REF: 002

Card 2/2

ACC NR: AP7005340

SOURCE CODE: UR/0181/67/009/001/0162/0166

AUTHOR: Zhitnikov, R. A.; Kolesnikov, N. V.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Theoretical analysis of the matrix shifts of the splittings of the hyperfine structure for the atoms Cu, Ag, and Au, stabilized in a polar matrix (H_2O)

SOURCE: Fizika tverdogo tela, v. 9, no. 1, 1967, 162-166

TOPIC TAGS: copper, silver, gold, hyperfine structure, line splitting, polar molecule, ground state

ABSTRACT: This is a continuation of earlier work (FTT v. 7, 1710, 1965 and earlier) where experimental data were obtained on the hyperfine structure of the ground states of atoms stabilized in polar matrices. The present investigation is devoted to a theoretical interpretation of these data for the atoms Cu, Ag, and Au captured in a matrix of polar H_2O molecules, and to theoretical estimates of the variation of the hyperfine structure for atoms of the same elements, but stabilized in a nonpolar molecular matrix (C_6H_6), also carried out by the authors earlier. The present calculations are based on the results of formulas derived in the earlier work. The comparison of the theoretical calculation with the experimental data shows that the matrix shifts in a polar matrix for the Ag and Au atoms can be satisfactorily explained on the basis of theoretical ideas advanced by E. J. Adrian (J. Chem. Phys.

Card 1/2

ACC NR: AP7005340

v. 32, 972, 1960) and C. K. Jen et al. (Phys. Rev. v. 126, 1749, 1962). In the case of copper, a slight discrepancy between the theory and the experiment is noted and its causes are discussed. The main conclusion of the work is that the principal part of the variation of the hyperfine structure of the stabilized atoms is not determined by the polarity of the molecules of the matrix. The authors thank I. M. Band for programming the calculations with the BESM-2 computer of the Academy of Sciences SSSR. Orig. art. has: 2 figures, 3 formulas, and 1 table.

SUB CODE: 20/   SUBM DATE: 09Jun66/   ORIG REF: 005/   OTH REF: 007

Card 2/2

ZHITNIKOV, R.A.; KOLESNIKOV, N.V.

Method for temperature studies in analyzing the paramagnetic
resonance of free atoms stabilized in various media.   Prib.
i tekhn.eksp. 10 no.5:236-237 S-O '65.

(MIRA 19:1)

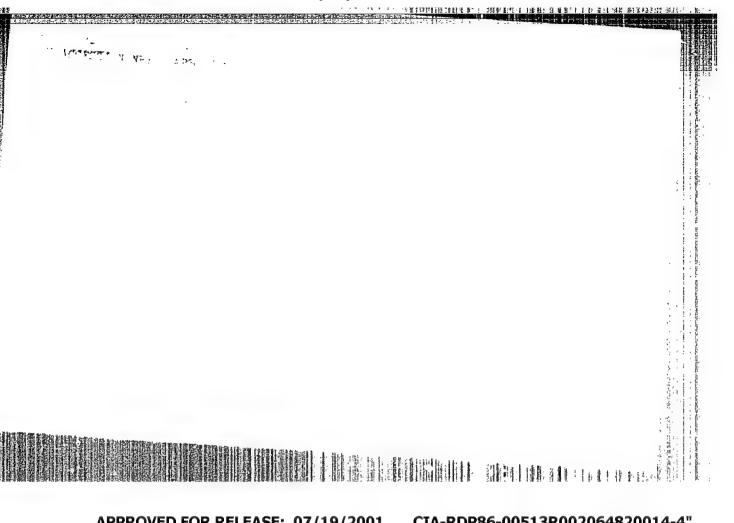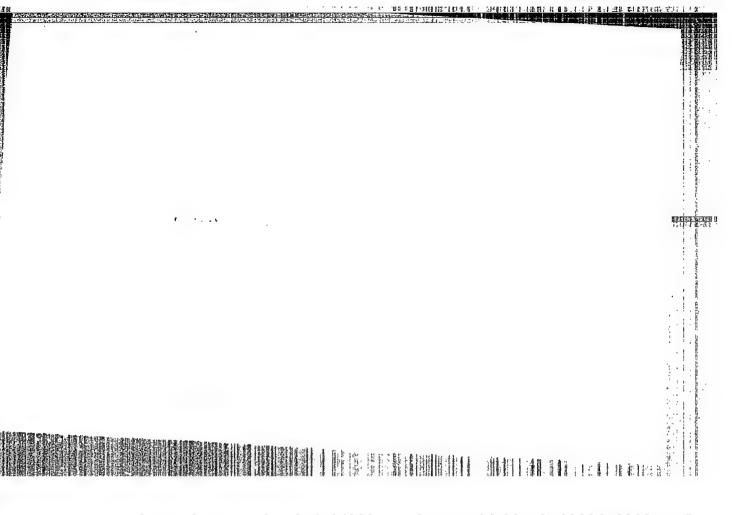1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad. Submitted
July 31, 1964.

ZHITNIKOV, R.A.; ORBELI, A.L.

Paramagnetic resonance of hydrogen atoms forming in frozen acids
irradiated at 77°K. Fiz. tver. tela 7 no. 12:3522-3529 D '65
(MIRA 19:1)

1. Fiziko-tekhnicheskiy institut imeni Ioffe AN SSSR, Leningrad.

ZHITNIKOV, R.A.; KOLESNIKOV, N.V.

Hyperfine structure of the paramagnetic resonance spectra of
free Ag, Au, and Cu atoms stabilized in a benzene matrix at
the temperature of liquid hydrogen. Fiz. tver. tela 7
no.6:1710-1716 Je '65.

(MIRA 18:6)

1. Fiziko-tekhnicheskiy institut imeni Ioffe AN SSSR, Leningrad.

ZHITNIKOV, R.A.; KOLESNIKOV, N.V.

Paramagnotic resonance of free copper atoms in various matrices
at temperatures of liquid nitrogen. Fiz. tver. tela 6 no. 11:3307-
3316 N '64.

(MIRA 18:1)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe, AN SSSR,
Leningrad.

ZHITNIKOV, R.A.; KOLESNIKOV, N.V.

Method for obtaining finely dispersed colloidal metals. Prib.
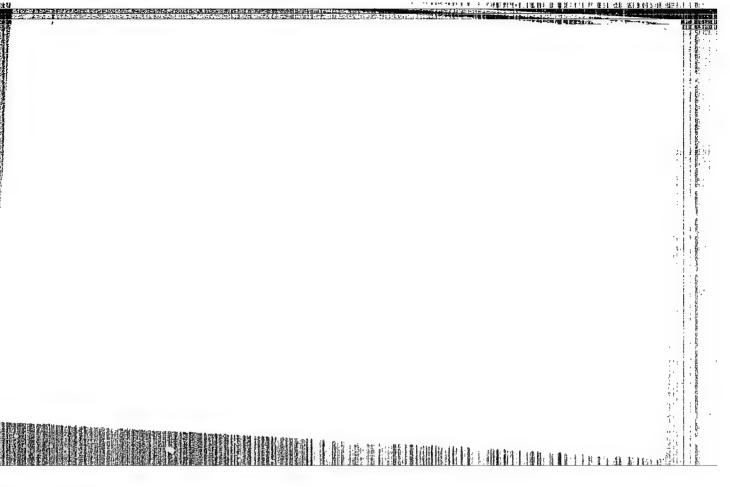i tekh. eksp. 9 no.4:180-181 Jl-Ag '64.
(MIRA 17:12)

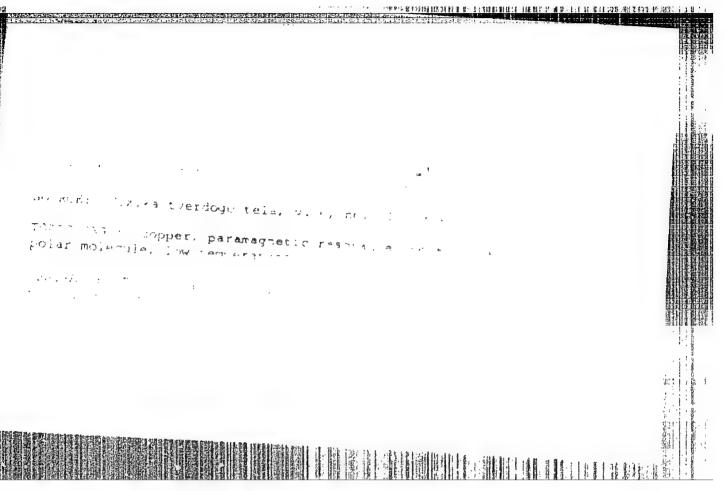1. Fiziko-tekhnicheskiy institut AN SSSR.

ZHITNIKOV, R.A.; KOLESNIKOV, N.V.

Methods of trapping free atoms in various media at the tempera-
ture of liquid nitrogen for conducting studies with the aid of
paramagnetic resonance. Prib. i tekh. eksp. 9 no.3:189-192
My-Je '64

(MIRA 18:1)

1. Fiziko-tekhnicheskiy institut AN SSSR.

copper, paramagnetic res
polar molecule, low temperat

ZHITNIKOV, R.A.; KOLESNIKOV, N.V.

Paramagnetic resonance of free gold and silver atoms captured in various media at the temperature of liquid nitrogen. Zhur. eksper. i teor. fiz. 46 no.1:89-98 Ja'64.   (MIRA 17:2)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR.

ACCESSION NR: AP4012527

S/0056/64/046/001/0089/0098

AUTHORS: Zhitnikov, R. A.; Kolesnikov, N. V.

TITLE: Paramagnetic resonance of free gold and silver atoms trapped in different media at liquid nitrogen temperatures

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 89-98

TOPIC TAGS: gold, silver, free atom, free gold atom, free silver atom, trapped gold atom, trapped silver atom, paramagnetic resonance, trapping in polar medium, trapping in nonpolar medium, polar matrix, nonpolar matrix, undecane, water, heavy water, ethyl alcohol, spin lattice relaxation, saturation, hyperfine interaction, paramagnetic. resonance line width, anisotropy of interaction, atomic shell distortion
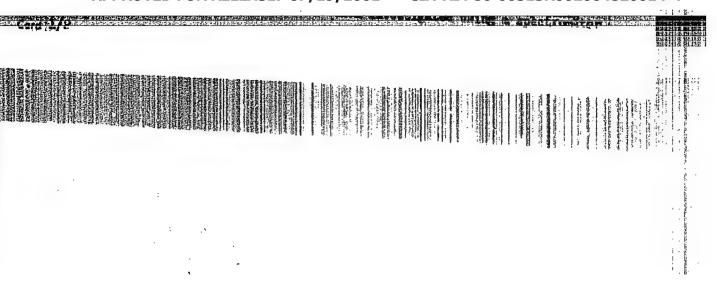
ABSTRACT: This is a continuation of studies of the trapping and stabilization of silver atoms at liquid-nitrogen temperatures in non-
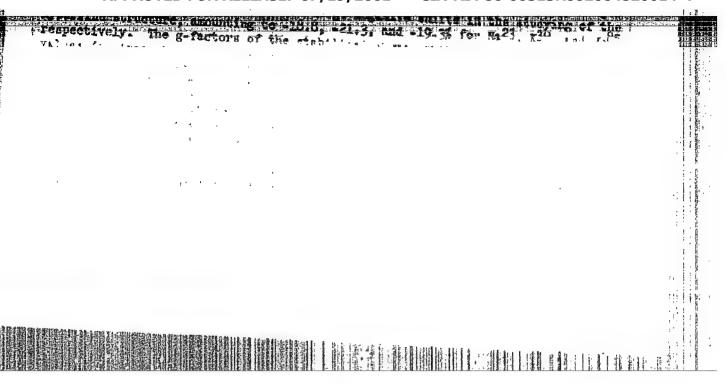
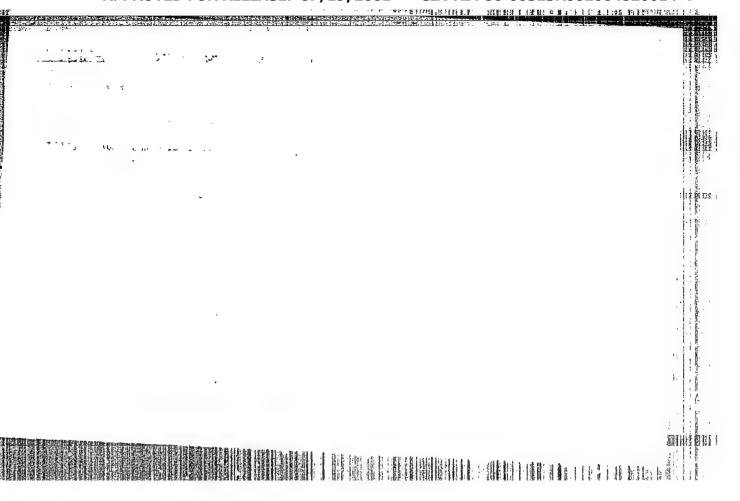Card 1/8
2

ACCESSION NR: AP4012527

polar and polar matrices (ZhETF v. 42, 1186, 1962 and v. 44, 1204, 1963). The paramagnetic resonance of gold atoms trapped by condensation at liquid nitrogen temperatures in polar media (ordinary and heavy water, ethyl alcohol) and in a nonpolar one (undecane) is investigated. Paramagnetic resonance of silver in undecane is also investigated for comparison. It is concluded that neither saturation, spin-lattice relaxation, replacement of protons by deuterons, nor hyperfine interaction of the trapped atoms with the nuclear moments of the matrix make a considerable contribution to the line widths, which are determined in practice by the inhomogeneity and anisotropy of the interaction forces. It is also concluded that, of all the matrices investigated, water produces the smallest disturbance of the shells of the trapped atoms and ethyl alcohol the largest. Orig. art. has: 3 figures, 2 formulas, and 2 tables.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR (Physicotechnical Institute AN SSSR)

Card   2/5

L 51510-65

respectively. The g-factors of the

L 8622-66   EWT(1)/EWT(m)/EWP(b)/EWP(t)   IJP(c)   GG/WW/JD

ACC NR: AP5027044   SOURCE CODE: UR/0120/65/000/005/0236/0237

AUTHOR: Zhitnikov, R. A.; Kolesnikov, N. V.

ORG: Physics-Engineering Institute, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: A method for temperature investigations during the study of the paramagnetic resonance of free atoms stabilized in various media

SOURCE: Pribory i tekhnika eksperimenta, no. 5, 1965, 236-237

TOPIC TAGS: low temperature phenomenon, paramagnetic resonance, atom, atomic physics

ABSTRACT: An earlier study of free atoms stabilized at liquid nitrogen temperature was carried out utilizing a specially designed and constructed device (PTE, 1964, No 3, 189). During the increase in temperature above a certain value, the stabilized atoms begin to disappear as a result of diffusion and reaction with the substance of the matrix. To study such maximum temperatures at which the stabilized atoms are still able to exist, the study of paramagnetic resonance spectra must be carried out in a wide range of temperatures. The present note describes a method for the cooling and smooth temperature control in a device for the paramagnetic resonance investigation of stabilized atoms. The cooling in the 20 to 100K region is carried out by helium vapors, and in the 95-300K region by nitrogen vapors. The device is capable of maintaining these temperatures within ±2K. Orig. art. has: 2 figures.

Card 1/2   UDC: 536.48

8622-66

ACC NR: AP5027044

SUB CODE: NP, TD / SUBM DATE: 31Jul64 / ORIG REF: 002

jw

Card 2/2

EWT(1)/EWT(m)/EWP(t)/EWP(b)   IJP(c)   JD/WW/GG

ACC NR: AP6000849

SOURCE CODE: UR/0181/65/007/012/3522/3529

AUTHORS: Zhitnikov, R. A.; Orbell, A. L.

ORG: Physicotechnical Institute im. A. F. Ioffe AN SSSR, Leningrad
(Fiziko-tekhnicheskiy Institut AN SSSR)

TITLE: Paramagnetic resonance of hydrogen atoms produced in frozen
acids irradiated at 77K

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3522-3529

TOPIC TAGS: electron paramagnetic resonance, hydrogen, x ray irradia-
tion, uv irradiation, inorganic acid, hyperfine structure, line
splitting

ABSTRACT: This is a continuation of earlier work by the authors (FTT
v. 7, 1926, 1965) and is devoted to an investigation of frozen acids
and alkalis exposed to x-rays and ultraviolet 77K. A large yield of
stabilized hydrogen atoms was obtained in HF and HCl and was investi-
gated by the method of paramagnetic resonance. Pure aqueous solutions
of varying concentrations were tested. In the case of acids which
could be obtained in large concentrations (H_2SO_4 and H_3PO_4), it was
observed that the splitting of the hyperfine structure of the stabilized

Card   1/2

Card   2/2

L 13115-66

ACC NR: AP6000849

3

hydrogen atom depends on the concentration of the acid in the aqueous solution. The splitting of the hyperfine structure and the g factor of the stabilized hydrogen atoms were determined from the paramagnetic resonance spectra with the aid of the Breit-Rabi equation. Other acids tested were HBr, HI, and HNO_3, and the alkalis tested were NaOH, KOH, RbOH, CsOH, and NH_4OH. The results indicate that the properties of the stabilized atoms are governed principally by the basic element of the acid (F, Cl, etc.), and that the presence or absence of oxygen does not exert a noticeable influence. Certain acids exhibited no dependence of the hyperfine splitting on the concentration (HF, HCl, $HClO_4$), probably because these acids are obtainable only at low concentrations. The g-factors of stabilized and frozen hydrogen atoms in the acids turned out to be equal, within the limits of experimental accuracy, to those of the perfectly free atom. The differences between stabilized hydrogen and silver atoms and the mechanism of formation of stabilized hydrogen atoms are discussed. Some of the experiments were performed by graduate students of LPI im. M. I. Kalinina, L. S. Matyunina, and Yu. N. Kozlov. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 29May65/ ORIG REF: 003/ OTH REF: 003

Card   2/2 HW

SILKIN, A.T., starshiy elektromekhanik; ZHITNIKOV, V.I., inzh.

Mobile workshop-laboratory used for inspecting high-voltage lines. Avtom., telem. i sviaz' 2 no.9:32 S '58. (MIRA 11:10)

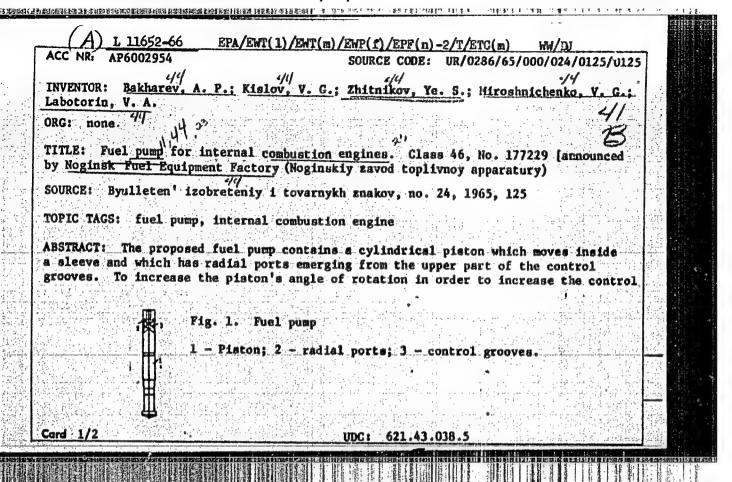1. 2-ya Novosibirskaya distantsiya signalizatsii i svyazi Tomskoy dorogi.
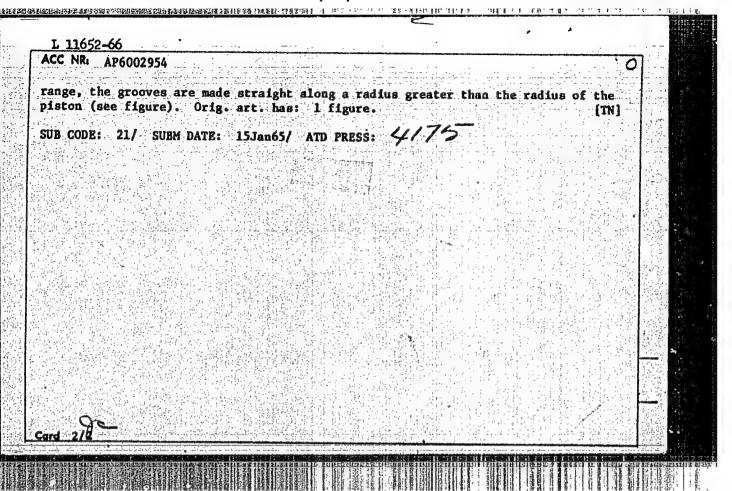   (Electric lines--Testing)

ZHITNIKOV, YE. I., CAND TECH SCI, "INCREASE ON THE EF-
FICIENCY OF A TELEVISION RADIO LINE BY THE TRANSMISSION OF
IMAGE AND SOUND SIGNALS ON *a single* CARRIER FREQUENCY." LENIN-
GRAD, 1961. (MIN OF HIGHER AND SEC SPEC ED RSFSR. LENIN-
GRAD INST OF AVIATION INSTRUMENT MAKING *Building*). (KL-DV, 11-61,
219).

(A) L 11652-66   EPA/EWT(1)/EWT(m)/EWP(f)/EPF(n)-2/T/ETC(m)   WW/DJ

ACC NR: AP6002954   SOURCE CODE: UR/0286/65/000/024/0125/0125

INVENTOR: Bakharev, A. P.; Kislov, V. G.; Zhitnikov, Ye. S.; Miroshnichenko, V. G.; Labotorin, V. A.

ORG: none.

TITLE: Fuel pump for internal combustion engines. Class 46, No. 177229 [announced by Noginsk Fuel Equipment Factory (Noginskiy zavod toplivnoy apparatury)

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 125

TOPIC TAGS: fuel pump, internal combustion engine

ABSTRACT: The proposed fuel pump contains a cylindrical piston which moves inside a sleeve and which has radial ports emerging from the upper part of the control grooves. To increase the piston's angle of rotation in order to increase the control

Fig. 1. Fuel pump

1 - Piston; 2 - radial ports; 3 - control grooves.

Card 1/2   UDC: 621.43.038.5

L 11652-66

ACC NR: AP6002954   O

range, the grooves are made straight along a radius greater than the radius of the piston (see figure). Orig. art. has: 1 figure.   [TN]

SUB CODE: 21/ SUBM DATE: 15Jan65/ ATD PRESS: 4175

Card 2/2

FURMAN, M.S., doktor khim.nauk; GOL'DMAN, A.M., kand.nauk; OLEVSKIY, V.M., kand.tekhn.nauk; RUCHINSKIY, V.R.; Prinimali uchastiye: ROZENFEL'D, I.M.; LAVRICHENKO, A.A.; VAYSMAN, I.L.; ZHITNIKOVA, N.K.

Catalytic oxidation of cyclohexane by air under pressure by the continuous method. Khim.prom. no.4:265-272 Je '60.   (MIRA 13:8)

(Cyclohexane) (Oxidation)

BECHIN, Aleksey Petrovich; FILIMONOV, N.A., prof., Geroy Sotsiali-
sticheskogo Truda; MOZHEVITINOV, A.L., red.; ZHITNIKOVA, O.S.,
tekhn. red.

[Construction of foundation pits for hydraulic power instal-
lations] Sooruzhenie kotlovanov gidrouzlov. Moskv., Gos.
enerf.izd-vo, 1961. 179 p. (MIRA 15:3)
  (Hydraulic structures)   (Foundations)

RIVLIN, Lev Borisovich; DERO, A.R., red.; ZHITNIKOVA, O.S., tekhn.
red.

[How to locate faults in an asynchronous motor]Kak oprede-
lit' neispravnost' asinkhronnogo dvigatelia. Izd.2., ispr.
Moskva, Gosenergoizdat, 1962. 55 p. (Biblioteka elektro-
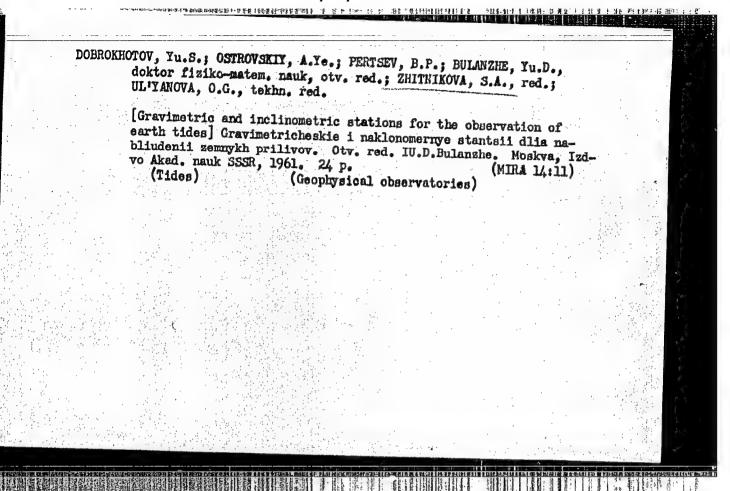montera, no.77)   (MIRA 15:10)
        (Electric motors, Induction—Maintenance and repair)

NAZAROV, Vasiliy Stratonikovich; TSURIKOV, V.L., otv. red.; BELOUSOV,
I.M., otv. red.; ZHITNIKOVA, S.A., red.; SUSHKOVA, L.A.,
tekhn. red.

[Papers]Sbornik statei. Moskva, Izd-vo Akad. nauk SSSR. (Re-
zul'taty issledovanii po programme Mezhdunarodnogo geofiziche-
skogo goda). No.6. [Ice of the Antarctic waters]L'dy antarkti-
cheskikh vod. 1962. 72 p.   (MIRA 15:10)

1. Akademiya nauk SSSR. Mezhduvedomstvennyy geofizicheskiy ko-
mitet. X razdel programmy MGG. Okeanologiya.
      (Antarctic Ocean--Sea ice)

DOBROKHOTOV, Yu.S.; OSTROVSKIY, A.Ye.; PERTSEV, B.P.; BULANZHE, Yu.D.,
    doktor fiziko-matem. nauk, otv. red.; ZHITNIKOVA, S.A., red.;
    UL'YANOVA, O.G., tekhn. red.

[Gravimetric and inclinometric stations for the observation of
earth tides] Gravimetricheskie i naklonomernye stantsii dlia na-
bliudenii zemnykh prilivov. Otv. red. IU.D.Bulanzhe. Moskva, Izd-
vo Akad. nauk SSSR, 1961. 24 p.   (MIRA 14:11)
    (Tides)   (Geophysical observatories)

BUGAYEV, V.A., doktor geogr. nauk, otv. red.; TOLSTIKOV, Ye.I.,
kand. geogr. nauk, otv. red.; ZHITNIKOVA, S.A., red.;
GUS'KOVA, O.M., tekhn. red.

[Collected articles] Sbornik statei. Moskva, Izd-vo AN
SSSR. No.5.[Meteorological research] Meteorologicheskie
issledovaniia. 1963. 106 p. No.6. [Research on the
climatology of noctilucent clouds] Issledovaniia po kli-
matologii serebristykh oblakov. 1963. 83 p.
                                    (MIRA 16:10)
1. Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po
provedeniyu Mezhdunarodnogo geofizicheskogo goda. II raz-
del programmy MGG: Meteorologiya.
                              (Clouds)

BOROVINSKIY, Boris Aleksandrovich; AVSYUK, G.A., otv. red.;
ZHITNIKOVA, S.A., red.; MATYUKHINA, L.I., tekhn. red.

[Collection of articles] Sbornik statei. Moskva, Izd-vo
AN SSSR, Nos.10, 5.[Exploration of the Trans-Ili Alatau
by geophysical methods] Izuchenie lednikov Zailiiskogo
Alatau geofizicheskimi metodami. 1963. 111 p.
(MIRA 16:10)
1. Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po pro-
vedeniyu Mezhdunarodnogo geofizicheskogo goda. IX i XII
razdely MGG: Glyatsiologiya i seysmologiya. 2. Chlen-
korrespondent AN SSSR (for Avsyuk).
    (Trans-Ili Alatau--Glaciological research)

KRASOVSKIY, V.I., doktor fiz.-matem. nauk, otv. red.; BAGARYATSKIY,
B.A., kand. fiz.-matem. nauk, otv. red.; ZHITNIKOVA, S.A.,
red.; DOROKHINA, I.N., tekhn. red.; MATYUKHINA, L.I.,
tekhn. red.

[Collection of articles of the Intergovernmental Committee
for the Execution of the International Geophysical Year]
Sbornik statei Mezhduvedomstvennogo komiteta po provedeniiu
Mezhdunarodnogo geofizicheskogo goda.   Moskva, Izd-vo AN
SSSR. No.10. 1963. 153 p.   (MIRA 17:2)

1. Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po pro-
vedeniyu Mezhdunarodnogo geofizicheskogo goda. IV razdel prog-
rammy MGG: Polyarnyye siyaniya i svecheniye nochnogo neba.

KUSHNEREVSKIY, Yu.V., kand. fiz.-matem. nauk, otv. red.; BOYENKOVA,
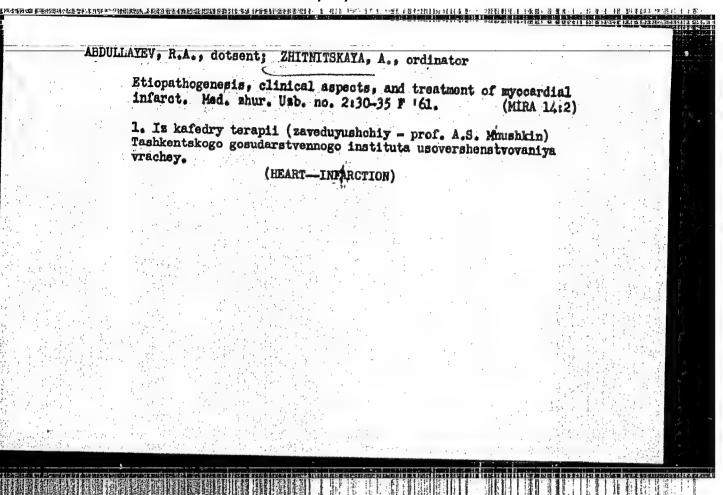N.M., otv. red.; ZHITNIKOVA, S.A., red.

[Collection of articles] Sbornik statei. Moskva, Nauka.
No.3. 1964. 170 p.   (MIRA 18:1)

1. Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po
provedeniyu Mezhdunarodnogo geofizicheskogo goda. V razdel
programmy MGG. Ionosfera.

KASHCHEYEV, V.L.; TSESEVICH, V.P.; FEDYNSKIY, V.V., doktor fiz.-
matem. nauk, otv. red.; ZHITNIKOVA, S.A., red.

[Study of atmospheric circulation in the meteor zone] Is-
sledovanie tsirkuliatsii atmosfery v meteornoi zone. Mo-
skva, Nauka, 1965. 63 p.   (MIRA 18:4)

1. Politekhnicheskiy institut im. V.I.Lenina, Khar'kov (for
Kashcheyev). 2. Astronomicheskaya observatoriya Gosudarstven-
nogo universiteta im. V.I.Mechnikova, Odessa (for TSesevich).

ABDULLAYEV, R.A., dotsent; ZHITNITSKAYA, A., ordinator

Etiopathogenesis, clinical aspects, and treatment of myocardial
infarct. Med. zhur. Uzb. no. 2:30-35 F '61.   (MIRA 14:2)

1. Iz kafedry terapii (zaveduyushchiy - prof. A.S. Mnushkin)
Tashkentskogo gosudarstvennogo instituta usovershenstvovaniya
vrachey.
                    (HEART—INFARCTION)

ZHITNITSKAYA, E.A.

Results of mass treatment of ancylostomiasis with alcopar
(naphthamon). Med. paraz. i paraz. bol. 32 no.4:389-394
Jl-Ag '63.   (MIRA 17:8)

1. Iz Uzbekskogo instituta meditsinskoy parazitologii i
gel'mintologii (dir. - prof. L.M. Isayev).

ZHITNITSKAYA, E.A.; GORODILOVA, L.I.; SAFAROV, G.I.; ARTYKOV, M.B.;
ARASHEV, A.A.; SAFAYEVA, D.B.

Organization of measures for the eradication of an ankylostomiasis
focus in Karakul District, Bukhara Province. Med. paraz. i paraz.
bol. 33 no.6:707-710 N-D '64.   (MIRA 18:6)

1. Uzbekskiy institut eksperimental'noy meditsinskoy parazitologii
i gel'mintologii, Bukharskaya oblastnaya sanitarno-epidemicheskaya
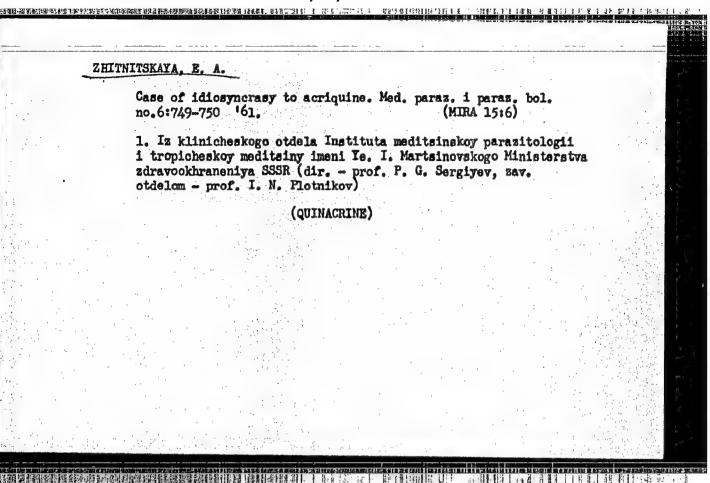stantsiya i Karakul'skaya tsentral'naya rayonnaya bol'nitsa.

ZHITNITSKAYA, E.A.; STROMSKAYA, T.F.; MAMROVA, Ye.A.

Clinical aspects and treatment of trichostrongylosis patients.
Med.paraz.i paraz.bol. 33 no.4:415-419 Jl-Ag '64.

(MIRA 18:3)

1. Klinicheskiy otdel Instituta meditsinskoy parazitologii i
tropicheskoy meditsiny imeni Ye.I.Martsinovskogo, sanitarno-epide-
miologicheskaya stantsiya Moskvy i uchastkovaya bol'nitsa imeni
Molokova Ul'yanovskogo rayona Moskovskoy oblasti.

ZHITNITSKAYA, E. A.

Case of idiosyncrasy to acriquine. Med. paraz. i paraz. bol.
no.6:749-750 '61.   (MIRA 15:6)

1. Iz klinicheskogo otdela Instituta meditsinskoy parazitologii
i tropicheskoy meditsiny imeni Ye. I. Martsinovskogo Ministerstva
zdravookhraneniya SSSR (dir. - prof. P. G. Sergiyev, zav.
otdelom - prof. I. N. Plotnikov)

(QUINACRINE)

ZHITNITSKAYA, E. L., Cand Tech Sci — (diss) "Study of eccentrically
reinforced concrete
compressed ~~rull~~ columns with a supporting profile reinforcement ~~of low~~ *at slight*

eccentricity." Mos, 1958. 18 pp incl cover (Acad of Construction and

Architecture USSR, Sci Res Inst of Concrete and Reinforced Concrete

NIIZhB), 120 copies (KL, 17-58, 108)

124-58-9-10543D

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 157 (USSR)

AUTHOR: Zhitnitskaya, E. L.

TITLE: Investigation of Eccentrically Compressed Reinforced-concrete
            Columns With Stressed Shaped-profile Reinforcement, When the
            Eccentricity is Small (Issledovaniye vnetsentrenno-szhatykh
            zhelezobetonnykh kolonn s nesushchey profil'noy armaturoy pri
            malykh ekstsentritsitetakh)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree
            of Candidate of Technical Sciences, presented to the N. -i. in-t
            betona i zhelezobetona Akad. str-va i arkhitektury SSSR (Scien-
            tific Research Institute for Concrete and Reinforced Concrete,
            Academy of Construction and Architecture, USSR), Moscow, 1958.

ASSOCIATION: N. -i. in-t betona i zhelezobetona Akad. str. -va i arkhitektury
            SSSR (Scientific Research Institute for Concrete and Reinforced
            Concrete, Academy of Construction and Architecture, USSR),
            Moscow

            1. Structures--Analysis   2. Reinforced concrete--Applications

Card 1/1

S/072/63/000/002/001/002
B101/B186

AUTHOR: Zhitomirskaya, E. Z., Candidate of Technical Sciences

TITLE: Causes of increased water adsorption by foam glass

PERIODICAL: Steklo i keramika, no. 2, 1963, 19 - 20

TEXT: The sudden increase in water adsorption by foam glass despite un-
changed production conditions is explained as a secondary crystallization
process in which the pore structure is destroyed. Secondary crystalliza-
tion occurs near the foaming temperature ($1160 \pm 20^{\circ}C$) if the glass is kept
in the critical temperature range for too long. For example: after
primary crystallization at $700^{\circ}C$, secondary crystallization at $900^{\circ}C$
causes 1.2% by volume water adsorption after 2 hrs and 3.6% after 8 hrs.
If secondary crystallization occurs at $1100^{\circ}C$, the corresponding values are
17.7 and 43.3% by volume. Keeping the glass at high temperatures for too
long after foaming causes not additional foaming, but breaking of the pores,
as the liquid phase remaining after crystallization has a lower viscosity.
This may be due to incorrect temperature conditions in the furnace, and to
the use of a foaming agent acting at higher temperatures. Thus, increased

Card 1/2

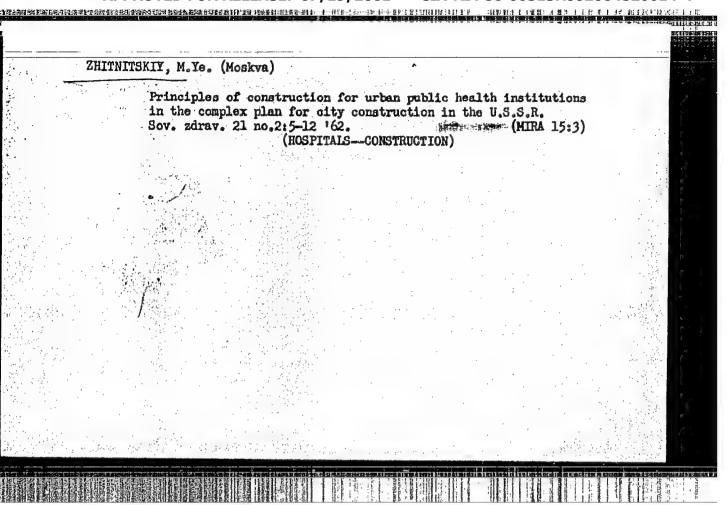Causes of increased water...   S/072/63/000/002/001/002
                                                                B101/B186

water adsorption of foam glass occurred at 800 - 850°C when anthracite or
carbon black were used as foaming agents. In this case, foaming set in
at 800 - 850°C as compared to 730 - 750°C when peat semicoke is used.
Furthermore, ash particles of the foaming agent may act as seed crystals.
The most important cause, however, is the previous thermal treatment of the
glass, which may cause seed crystals to form. Hence it is recommended that
glass production be controlled by the works department where foaming is
conducted. There is 1 table.

ASSOCIATION: Institut stekla (Institute of Glass)

Card 2/2

ZHITNITSKIY, M.Ye. (Moskva)

Principles of construction for urban public health institutions
in the complex plan for city construction in the U.S.S.R.
Sov. zdrav. 21 no.2:5-12 '62.   (MIRA 15:3)
(HOSPITALS—CONSTRUCTION)

ZHITNITSKIY, Moisey Yevseyevich; IKONNIKOVA, A.V., red.; CHULKOV,
I.F., tekhn. red.

[Two-step system of treating patients in hospitals] Dvukh-
stepennaia sistema obsluzhivaniia bol'nykh v statsionare. Mo-
skva, Medgiz, 1963. 110 p.   (MIRA 16:6)
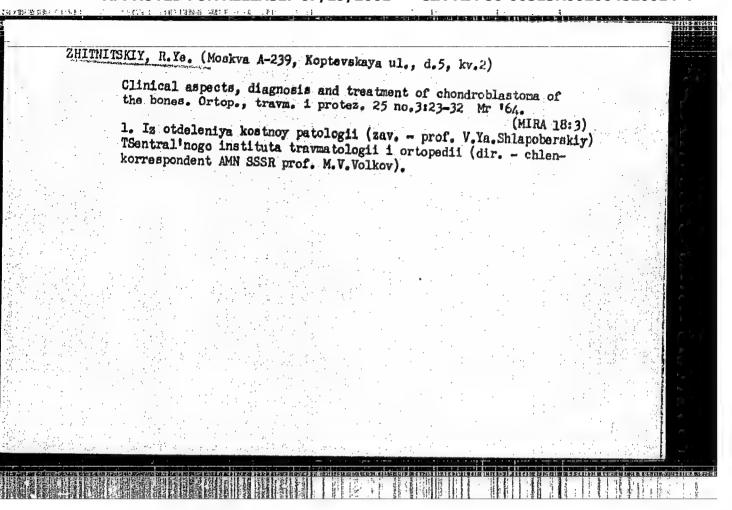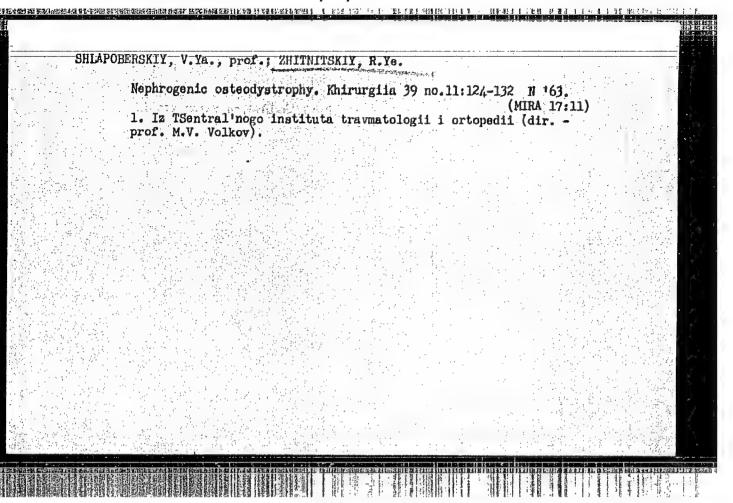   (HOSPITAL CARE)

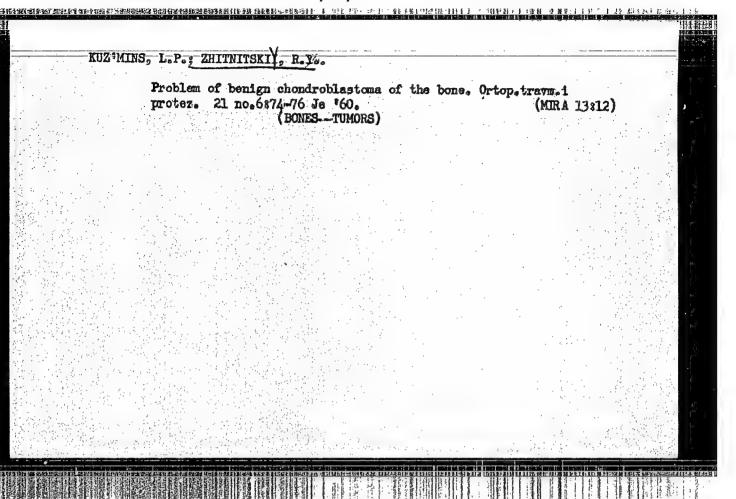ZATSEPIN, S.T., kand. med. nauk (Moskva, G-19, Gogolevskiy bul'var, d.29, kv.38); ZHITNITSKIY, R.Ya.

Case of chondrosarcoma of the coracoid process of the scapula. Ortop., travm. i protez. 25 no.6:47-49 Je '64.

(MIRA 18:3)

1. Iz otdeleniya kostnoy patologii (zav. - prof. V.Ya. Shlapoberskiy) TSentral'nogo instituta travmatologii i ortopedii (dir. - chlen-korrespondent AMN SSSR prof. M.V. Volkov).

ZHITNITSKIY, R.Ye. (Moskva A-239, Koptevskaya ul., d.5, kv.2)

Clinical aspects, diagnosis and treatment of chondroblastoma of the bones. Ortop., travm. i protez. 25 no.3:23-32 Mr '64.

(MIRA 18:3)

1. Iz otdeleniya kostnoy patologii (zav. - prof. V.Ya.Shlapoberskiy) TSentral'nogo instituta travmatologii i ortopedii (dir. - chlen-korrespondent AMN SSSR prof. M.V.Volkov).

SHLAPOBERSKIY, V.Ya., prof.; ZHITNITSKIY, R.Ye.

Nephrogenic osteodystrophy. Khirurgiia 39 no.11:124-132 N '63.
(MIRA 17:11)

1. Iz TSentral'nogo instituta travmatologii i ortopedii (dir. -
prof. M.V. Volkov).

KUZ'MINS, L.P.; ZHITNITSKIY, R.Ya.

Problem of benign chondroblastoma of the bone. Ortop.travm.i
protez. 21 no.6:74-76 Je '60.   (MIRA 13:12)
                    (BONES--TUMORS)

ZATSEPIN, S.T., starshiy, nauchnyy sotrudnik; ZHITNITSKIY, R.Ye.

Clinical aspects and treatment of echinococcosis of the bones.
Khirurgiia 39 no.5:70-77 My '63.   (MIRA 17:1)

1. Iz otdeleniya kostnoy patologii (zav. - prof. V.Ya. Shlapobers-
kiy) i TSentral'nogo instituta travmatologii i ortopedii (dir. -
doktor med. nauk M.V. Volkov).

ZHITNITSKIY, R. Ye.

Case of congenital pseudoarthrosis of the hip. Ortop., travm. i protez.
22 no.8:77-78 Ag '61.   (MIRA 14:12)

1. Iz detskogo ortopedicheskogo otdeleniya (zav. - zasluzh. deyatel'
nauki prof. Ye. K. Nikiforova) TSentral'nogo instituta travmatologii
i ortopedii (dir. - deystv. chlen AMN SSSR prof. N. N. Priorov
[deceased]).

         (HIP JOINT—ABNORMITIES AND DEFORMITIES)
         (PSEUDOARTHROSIS)

ZHITNITSKIY, R.Ye.

Atypical form of tuberculosis of the ischium. Probl. tub. 41 no.10: 87 '63.   (MIRA 17:9)

1. Iz otdeleniya kostnoy patologii (zav. - prof. V.Ya. Shlapoberskiy) TSentral'nogo instituta travmatologii i ortopedii (dir. - doktor meditsinskikh nauk prof. M.V.Volkov).

BRAKHMAN, L.A.; KISELEV, Ye.N.; RUSYY, V.D.; ZHITNITSKIY, S.I.;
REKSHINSKAYA, T.P.; BOL'SHAKOV, V.M.; PROVORKOV, V.V.

Using compact-grained hard alloys in the automobile industry.
Avt. prom. 31 no.2:38-41 F '65.
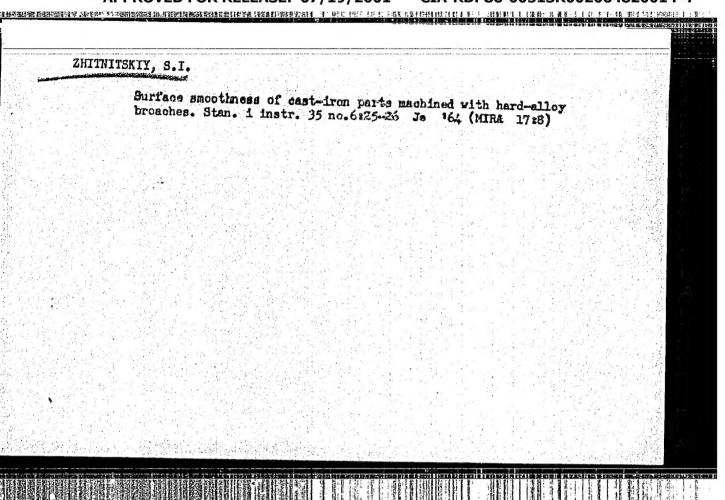
(MIRA 18:3)

1. Nauchno-issledovatel'skiy institut tekhnologii avtomobil'noy
promyshlennosti, Minskiy avtozavod, Bryanskiy avtozavod, Moskov-
skiy zavod malolitrazhnykh avtomobiley, Gor'kovskiy avtozavod i
Yaroslavskiy motornyy zavod.

ZHITNITSKIY, B.L.; ANDREYCHENKOV, O.L.; SAVIN, R.N.

Chamfering faces of cylindrical gear-wheel teeth with an
abrasive worm with plastic binding. Stan.i instr. 35 no.8,
37-38 Ag '64.   (MIRA 17:10)

ZHITNITSKIY, S.I.

Surface smoothness of cast-iron parts machined with hard-alloy broaches. Stan. i instr. 35 no.6:25-26 Je '64 (MIRA 17:8)

ZHITNITSKIY, S. I.

Comparing the wear resistance of various tool materials used in drawing cast-iron parts. Avt. prom. 28 no.6:40 Je '62.
(MIRA 16:4)

1. Bryanskiy avtozavod.

(Tool steel—Testing)

ZHITNITSKIY, S.I.

Factors affecting the cutting of the temperature during the broaching of cast iron with hard-alloy broaches. Stan. i instr. 34 no.8:30 Ag '63.   (MIRA 16:10)

ZHITNITSKIY, S.I.

Investigating cutting forces in external broaching of cast iron with hard-alloy broaches. Stan. i instr. 34 no.11: 29-31 N '63. (MIRA 16:12)